



BLUE ROCK
ENVIRONMENTAL, INC.

Mr. Mark Verhey
Humboldt County Health Department
Division of Environmental Health
100 H Street, Suite 100
Eureka, California 95501

July 19, 2006

Re: **Second Quarter 2006 Remediation Operations / Groundwater Monitoring
Remedial Progress Soil and Groundwater Sampling Report, &
Workplan for Dual-Phase Extraction Test**
Former Central BP Station
2160 Central Avenue
McKinley Ville, California
LOP # 12692
Blue Rock Project No. NC-24

Dear Mr. Verhey,

This report was prepared for the Louise Pierson Revocable Trust by Blue Rock Environmental, Inc. (Blue Rock), and presents the results of recent drilling and groundwater sampling activities performed at the Former Central BP Station located at 2160 Central Avenue in McKinley Ville, Humboldt County, California (site) (Figure 1).

Work presented herein was proposed in Blue Rock's *First Quarter 2006 Groundwater Monitoring / Remedial System Operations Report and Workplan for Additional Site Assessment* dated April 17, 2006, which was approved by the Humboldt County Division of Environmental Health (HCDEH) in a letter dated May 22, 2006.

The report is organized into the following sections:

- **Background**
- **SVE/AS Remediation System Operations – Second Quarter 2006**
- **Groundwater Monitoring Event – Second Quarter 2006**
- **Remedial Progress Soil Sampling**
- **Remedial Progress Groundwater Sampling MW-7**
- **Discussion of Current Site Conditions**
- **Conclusions and Recommendations**
- **Workplan for Dual-Phase Extraction Test**
- **Project Status**

Background

Site Description

The former Central BP Service Station is located in the unincorporated town of McKinleyville, California (Figure 1). The site is level and gravel surfaced, and the lot is approximately 0.5-acre. All former service station structures, including the fueling system, have been removed. The site is approximately 150 feet above mean sea level. Nearby property use is commercial.

Site and UST History

The Louise Pierson Trust has owned the property since 1956. A service station was constructed on the site in 1959. The original station included one 1,000-gallon used oil, two 5,000-gallon gasoline, and one 10,000-gallon gasoline underground storage tanks (USTs). In 1972, the station was remodeled, which included relocating the 1,000-gallon used oil tank 15 feet to the west, and installation of an additional 2,000-gallon gasoline UST was installed on the west side of the existing USTs.

In November 1990, the used oil tank and the 2,000-gallon UST were removed from the site. In August 1991, SHN Consulting Engineers excavated approximately 40 cubic yards of impacted soil from the 2,000-gallon UST pit.

In August 1998, Albers Construction of Eureka, California removed the remaining 5,000-gallon and 10,000-gallon USTs and over-excavated approximately 340 cubic yards of contaminated soil. Additionally, 200 cubic yards of contaminated tank fill was removed, remediated on site, and backfilled into the excavation per HCDEH approval. Soil samples collected from the UST excavations contained detectable levels of gasoline range hydrocarbons.

Site Investigation History

Site investigation has been ongoing since July 1999. A total of approximately 15 borings (B-1 through B-4, B-A through B-H, and SVB-1 through SVB-3) have been drilled and 12 monitoring wells (MW-1 through MW-12) installed at the site (Figure 2). Also, six vapor extraction wells (VEW-1 through VEW-6) and six air-sparge wells (SW-1 through SW-6) have been installed at the site (Figure 2). A summary of well construction details are included in Table 1 and cumulative soil and groundwater monitoring data are included in Tables 2 and 3, respectively.

Hydrogeology

Cumulative investigation has indicated that the subsurface is composed primarily of material classified as silty or clayey sands (SM-SC) to depths ranging from approximately 5 to 25 feet bgs, based on previous laboratory analysis for particle size analysis. Additionally, material classified as organic soil (OL-OH) and elastic silt (MH-ML) have been observed at depths ranging from approximately 2 to 5 feet bgs. Groundwater appears to occur in unconfined conditions with depth to water fluctuating between approximately 7 to 19 feet over the span of the annual hydrologic cycle. Groundwater flow direction has ranged from northwest to east.

Chemical Impact Type

The predominant chemicals of concern detected in the subsurface around the former UST system consist of total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethyl-benzene, xylene (BTEX). Low levels of fuel oxygenates (i.e. MTBE) and TPH as diesel (TPHd), relative to TPHg, have also been detected.

Remediation History

In April 2004, Sustainable Technologies of Alameda, California installed a soil vapor extraction/air sparge system (SVE/AS), which consisted of a grid of six vapor extraction and six air-sparge wells plumbed to a catalytic oxidizer and sparge blower. The SVE/AS system became operational in July 2004, and has operated nearly continuously from that time to the present (~22 months). Cumulative SVE/AS system operation has resulted in recovery of ~12,500 lbs of gasoline range hydrocarbons. On May 4, 2006, the remedial system was shut down to assess groundwater quality in MW-7 for potential rebound.

SVE/AS Remedial System Operations – Second Quarter 2006

Background

The soil vapor extraction system design includes six wells plumbed for vapor extraction VEW-1 to VEW-6 (Figures 3a and 4). The remediation system was constructed in April 2004 in accordance with Clearwater's *RAP* dated September 3, 2003. The system was tested on July 6 through July 9, 2004 for initial compliance according to the North Coast Unified Air Quality Management District (NCUAQMD) authority to construct (ATC) permit #NAC-380 (Attached). Effluent results of the verification testing indicated that the system was operating within compliance of the permit. Thus, according to the ATC permit weekly compliance monitoring was initiated. The interval for the monitoring of the system and the collection influent and effluent air samples was reduced to monthly from weekly beginning in August 2004 as system compliance with the NCUAQMD ATC permit had been demonstrated.

The air sparge injection system design includes five wells plumbed for sparging: SW-1 to SW-6 (Figure 3b). The air sparge system was constructed in April 2004.

SVE/AS Operational Data

Petroleum hydrocarbon vapors extracted from soil and groundwater are treated by a 250 scfm Solleco 250 ECAT catalytic oxidizer (catox).

In accordance with the NCAQMD ATC permit, the influent and effluent air streams for the catox unit were analyzed for contaminant concentrations (TPHg, BTEX and MTBE) during the first four days of startup and weekly thereafter. Sampling intervals were changed to monthly once compliance had been demonstrated. The following is a summary of the operational data and analytical results of samples from the soil vapor extraction process stream for this monitoring period:

- Total Operation: System started on July 6, 2004 to May 4, 2006
- Current Period of Operation: March 21, 2006 to May 4, 2006
- Monitoring Dates: 5/1/06
- Total Operational Hours: 11,770 hours to date
- Period Operational Hours: 984 Hours
- Period System running time: 91%
- Period Average influent air flow rate: 305 scfm
- Period Average influent air TPHg: 20 mg/m³
- Period Average effluent air TPHg: <20 mg/m³
- Period Average Destruction efficiency: n/a
- Period Average TPHg recovery rate: 1.5 lb/day
- Total TPHg recovery: 12,547 lb (2,064 gal) to date
- Operating wells: VEW-2 through VEW-6
- Analytes tested: TPHg, BTEX, MTBE
- Analytical methods: EPA Method 8260B
- Laboratory: Kiff Analytical LLC, Davis, California

The TPHg recovery rate is based on analytical influent air sample results and concurrently measured air flow. The average TPHg recovery rate for each month is multiplied by hours of operation for that period to calculate TPHg removal for the period between each sampling event.

Catox operational data and analytical results for influent and effluent samples, and compliance data are presented on Tables 4, 5, 6, and 7.

The following is a summary of the operational data for the air-sparge system for this monitoring period:

- Startup date: Started on December 1, 2004
- Operational time: On 24 hrs / day 7 days / week; off with SVE system shutdown
- Injection air flow rate: Approximately 2 to 3 scfm

The air sparge system was started following the installation of interlocks between the SVE and Sparge systems in early December 2004. The sparge system was subsequently shut down in mid December due to the added influent hydrocarbon concentrations originating from sparge system operation causing the system to shut down. When influent concentrations from SVE system operation began to diminish, the sparge system was restarted to remediate residual dissolved hydrocarbons.

In August 2005, the original 3-hp sparge pump had worn to the point that it no longer could pump a sufficient amount of air into the ground to produce a remedial effect. That pump was subsequently replaced with a 7.5-hp pump in an effort to resume effective groundwater remediation through air sparging. Additionally, the larger sparge pump has increased the rate of air flow into the subsurface thus increasing volatilization (stripping) of dissolved-phase hydrocarbons from dissolved phase to vapor phase for recovery through the catalytic oxidizer. Additionally, through operation of the sparge system, dissolved oxygen concentrations in site monitoring wells have increased to levels ranging as high as 10.85 mg/L.

SVE/AS Remedial System Status

The soil vapor extraction system is configured to concentrate extracting vapor from wells VEW-1 to VEW-6. The catox has been in operation since July 6, 2004. The soil vapor extraction system has operated as designed, recovering hydrocarbon vapor from the area of soil contamination at significant rates. An estimated 12,547 lb (2,064 gal) of hydrocarbons have been recovered from the subsurface.

In an effort to evaluate the effect of residual sorbed phase hydrocarbons remaining and the potential for rebound of dissolved phase contaminant concentrations, the remedial system was turned off on May, 4, 2006. Based on the rebound of dissolved phase contaminants observed during the last two sampling events, it appears further remedial efforts will be needed (see section below for further discussion).

Groundwater Monitoring Event – Second Quarter 2006

Groundwater Monitoring Activities

On June 16, 2006 twelve wells (MW-1 to MW-12) were gauged and MW-5, MW-6, MW-7, MW-8 and MW-12 were sampled. The SVE/AS Remediation System has been turned off since May 4, 2006 for the evaluation of trends in the magnitude and extent of residual dissolved phase contaminants.

Prior to sampling, an electronic water level indicator was used to gauge depth to water in each well, accurate to within ± 0.01 -foot. All wells were checked for the presence of light non-aqueous phase liquid (LNAPL) petroleum prior to purging. No measurable thicknesses of LNAPL were observed on groundwater in any of the wells.

In preparation for sampling, the wells were purged of groundwater until sampling parameters (temperature, pH, and conductivity) stabilized. A downhole Dissolved Oxygen (DO) meter was used to measure DO concentrations in groundwater after the wells were purged. DO concentrations recorded this quarter are listed in the text below.

Following recovery of water levels to approximately 80% of their static levels, groundwater samples were collected from the wells using disposable polyethylene bailers and transferred to laboratory supplied containers. Sample containers were labeled, documented on a chain-of-custody form, and placed on ice in a cooler for transport to the project laboratory.

Purging instruments were cleaned between use by an Alconox® wash followed by double rinse in clean tap water to prevent cross-contamination. Purge and rinse water was stored on-site in labeled 55-gallon drums pending future removal and disposal.

Groundwater monitoring and well purging information is presented on Gauge Data/Purge Calculations and Purge Data sheets (attached).

Groundwater samples were analyzed by Kiff Analytical (Kiff), a DHS-certified laboratory, located in Davis, California, for the following analytes:

- TPHd by EPA Method 3510/8015M (MW-7 Only).
- TPHg by EPA Method 5030/8260B (MW-5, MW-6, MW-7, MW-8 and MW-12).
- BTEX by EPA Method 8260B (MW-5, MW-6, MW-7, MW-8 and MW-12).
- MTBE by EPA Method 8260B (MW-5, MW-6, MW-7, MW-8 and MW-12).

Groundwater Monitoring Results

Static groundwater in the wells was present beneath the site at depths ranging from approximately 10.17 (MW-9) to 12.51 (MW-6) feet bgs. Gauging data, combined with well elevation data, were used to calculate groundwater elevations, and to generate a groundwater elevation and gradient map. On the west side of the site, groundwater flow is toward the east at a gradient of 0.01 ft/ft, and grades more north-northeast in the area of the former UST system and downgradient of the site at gradients ranging from 0.006 ft/ft to 0.009 ft/ft (Figure 5). Historic groundwater flow direction and gradient are shown in Figure 4. The groundwater gradient and flow direction for this quarter is consistent with previous measurements.

The following section summarizes groundwater sample analytical results:

LNAPL:	None
TPHd concentration:	< 2,000 µg/L (MW-7)
TPHg concentration:	<50 µg/L (MW-6 and MW-8) to 12,000 µg/L (MW-5 and MW-7)
Benzene concentration:	<0.50 µg/L (MW-6 and MW-8) to 380 µg/L (MW-5)
MTBE Concentration:	<0.50 µg/L (MW-5, 6, 8 and 12) to <1 µg/L (MW-7)

Groundwater sample analytical results are shown graphically on Figure 6. Cumulative groundwater sample analytical results are summarized in Table 3. Copies of the laboratory report and chain-of-custody form are attached.

The extent of dissolved-phase contamination remains delineated. Dissolved oxygen concentrations in groundwater ranged from 0.42 mg/L (MW-5) to 9.02 mg/L (MW-2) (See attached field notes).

Remedial Progress Soil Sampling

Purpose and Scope

The purpose of this phase of drilling and soil sampling was to evaluate:

- The lateral extent of soil impact to the north of former soil boring B-B,
- The vertical extent of MTBE in soil near SW-10, B-B, B-C, B-H, B-2, MW-7, VEW-1 and VEW-4, and
- The current distribution and magnitude of soil impact after 22 months of SVE/AS operations.

Soil Borehole Drilling and Soil Sampling Activities

On May 9, 2006, Blue Rock supervised the drilling of six direct push soil borings (B-5 to B-10) (Figure 2). Prior to drilling, soil boring permits were obtained from the HCDEH and right-of-entry agreements were obtained from appropriate parties, as needed. Prior to initiation of drilling activities, Blue Rock and drilling subcontractor personnel reviewed and signed a Site Safety Plan.

Drilling was performed by Fisch Environmental, of Valley Springs, California, using a direct-push drill rig. The soil borings were advanced to approximately 30 feet bgs.

Soil samples were collected from each boring during drilling activities at five foot intervals or where Organic Vapor Meter (OVM) readings indicated possible hydrocarbon contamination for sedimentological assessment and possible laboratory analysis. All soil samples were screened in the field using an OVM, and four to six samples were analyzed from each boring. The soil samples were collected using clean polyethylene sleeves, chilled, and shipped under chain of custody to the project laboratory.

Kiff Analytical (Kiff), a DHS-Certified laboratory in Davis, California, analyzed the soil samples by for the following compounds:

- TPHg by EPA method 8015/8260B
- BTEX by EPA Method 8260B
- MTBE by EPA Method 8260B

Hydrogeology

Cumulative investigation has indicated that the subsurface is composed primarily of material classified as silty or clayey sands (SM-SC) to depths ranging from approximately 5 to 30 feet bgs, based on previous laboratory analysis for particle size analysis and recent logging of B5 through B-10. The sand fraction increases with depth, so much so, that samples from 30 feet bgs bordered silty sand (SM) and sand (SP). The sand is fine-grained throughout the explored soil column. In addition to the predominant soil type described above, material classified as organic soil (OL-OH) and elastic silt (MH-ML) have been observed at shallow depths ranging from approximately 2 to 5 feet bgs. Boring logs are attached and updated cross-sections are shown on Figures 7a and 7b.

Groundwater was encountered during recent drilling efforts at depths ranging from ~10-15 feet bgs. Groundwater appears to occur in unconfined conditions with depth to water fluctuating between approximately 7 to 19 feet over the span of the annual hydrologic cycle. Groundwater flow direction has ranged from northwest to east.

Results of Soil Sample Analysis

All soil samples were successfully sent under chain-of-custody to the project laboratory. All soil samples collected from B-5 were below laboratory detection limits for TPHg concentrations. Low concentrations of benzene were detected in the 25 foot soil sample collected from B-5. Concentrations of MTBE were below laboratory detection limits for all soil samples collected from B-5.

All soil samples collected from B-6 were below laboratory detection limits for all analytes with the exception of the 20 foot sample which contained TPHg, toluene, ethylbenzene and xylenes at concentrations of 510 mg/kg, 0.065 mg/kg, 1mg/kg and 8 mg/kg, respectively.

The soil sample collected from B-7 at 20 feet bgs contained TPHg at a concentration of 3,100 mg/kg and benzene at a concentration of 2.4 mg/kg. Concentrations of toluene, ethylbenzene and xylenes were also detected in the 20 foot sample collected from B-7. Concentrations of toluene, xylenes and MTBE were detected in the 30 foot sample collected from B-7 at 0.014 mg/Kg, 0.010 mg/kg and 0.0071 mg/kg, respectively.

The soil sample collected from B-8 at 15 feet bgs contained TPHg at a concentration of 370 mg/kg. Generally low concentrations of toluene, ethylbenzene and xylenes were also detected in the 20 foot sample collected from B-8. Concentrations of MTBE were detected in the 15, 20, 25 and 30 foot samples collected from B-8 at 0.015 mg/kg, 0.010 mg/kg, 0.021 mg/kg and 0.20 mg/kg, respectively. Benzene was detected in the 20 and 30 foot sample collected from B-8 0.046 mg/kg and 0.032 mg/kg, respectively.

The soil samples collected from B-9 at 15 and 20 feet bgs contained TPHg at concentrations of 1,400 and 3,200 mg/kg, respectively. Generally low concentrations of benzene, toluene, ethylbenzene and xylenes were also detected in the 15 and 20 foot sample collected from B-9. Concentrations of MTBE were only detected in the 30 foot sample collected from B-9 at 0.016 mg/kg. However, the method reporting limit for MTBE was increased for the 15 and 20 foot samples collected from B-9. Low concentrations of toluene and/or xylenes detected in the 25 and 30 foot sample collected from B-9.

The soil sample collected from B-10 at 15, 20 and 25 feet bgs contained TPHg at a concentration of 1,100, 1,000 and 460 mg/kg respectively. Generally low concentrations of benzene, toluene, ethylbenzene and xylenes were also detected in the 15, 20 and 25 foot samples collected from B-10. Concentrations of MTBE were not detected in any of the soil samples collected from B-10. However, the method reporting limit for MTBE was increased slightly for the 15 and 20 foot samples collected from B-10. Low concentrations of toluene ethylbenzene and xylenes detected in the 30 and foot sample collected from B-10.

Recent soil sampling data are shown on Figures 7a, 7b, and 7c, and summarized in Table 2. Copies of the chain-of-custody and laboratory reports are attached.

Remedial Progress Groundwater Sampling (MW-7)

Purpose and Scope

The purpose of the additional sampling of MW-7 was to current phase of work was to:

- Perform remedial progress sampling following shut-down of the SVE/AS remedial system to evaluate potential for rebound.

Groundwater Sampling Activities

Well MW-7 was sampled on May 19, 2006 (15 days following SVE/AS system shut-down) and again on June 16, 2006 (43 days following SVE/AS system shut-down).

Well MW-7 was gauged and sampled using the methods described in the groundwater monitoring section above.

Kiff Analytical (Kiff), a DHS-Certified laboratory in Davis, California, analyzed the water samples by for the following compounds:

- TPHg by EPA Method 5030/8260B
- BTEX by EPA Method 8260B
- MTBE by EPA Method 8260B

Results of MW-7 Groundwater Sample Analysis

The groundwater samples collected from MW-7 on May 19, 2006 and June 16, 2006 were successfully sent under chain-of-custody to the project laboratory.

On May 19, 2006, MW-7 contained TPHg at 9,800 µg/L, benzene at 26 µg/L, and MTBE was non-detect <1.5µg/L.

On June 16, 2006, MW-7 contained TPHg at 12,000 µg/L, benzene at 43 µg/L, and MTBE was non-detect <1 µg/L.

Groundwater monitoring data summarized in Table 3. Copies of the chain-of-custody and laboratory reports are attached.

Discussion of Results

Lateral Delineation of Gasoline Range Hydrocarbons in Soil North of Boring B-B

The lateral extent of soil impacts northerly of boring B-B were delineated by the samples collected from boring B-5. Samples from B-5 at 10, 15, 20, 25, and 30 feet bgs were all non-detect for TPHg and MTBE (Table 2). Based on soil analytical collected from boring B-5, located approximately 25 feet north of former soil boring B-B, the lateral extent of gasoline range hydrocarbons in soil is delineated.

Vertical Delineation of Gasoline Range Hydrocarbons in Soil

Results of the subsurface investigation activities indicate that TPHg was detected in soil samples collected from 15 to 25 feet bgs, and detectable concentrations ranged from 370 mg/kg to 3,200 mg/kg. However, TPHg was not detected in any soil sample collected above 15 feet bgs or below 25 feet bgs (Table 2 and Figure 8a). Therefore, the vertical extent of sorbed-phase TPHg has been delineated.

Vertical Delineation of MTBE in Subsurface

Part of the purpose of the current phase of work was to evaluate the vertical extent of MTBE in areas with an MTBE concentrations >0.10 mg/kg. The areas of SW-13, VEW-3, B-3, VEW-1, B-H and VEW-2 were further evaluated for vertical delineation of MTBE concentrations in soil.

MTBE was delineated to non-detectable (<0.10 mg/kg) concentrations at a depth of 30 feet in all of the six soil borings drilled during this phase of investigation (B-5 through B-10), except for B-6. The soil sample from B-6 at feet bgs contained 0.20 mg/kg of MTBE. Based on these results, Blue Rock and the HCDEH verbally agreed to sampling of a nearby sparge well (screened 28-30 feet bgs) to determine if the MTBE in soil at 30 feet bgs of B-6 is resulting in dissolved-phase MTBE concentrations above water quality goals at that depth interval. This work will be completed in early July 2007 and reported shortly thereafter.

Current Distribution of Residual TPHg in Soil

Results of soil analytical data collected during this phase of work indicate a reduction in TPHg concentrations and distribution over the course of SVE/AS remediation. The maximum TPHg concentration detected during this phase of work was 3,200 mg/kg in B-9 at 20 feet bgs compared to the pre-remedial maximum of 12,900 mg/kg in B-B at 20 feet bgs.

Shallow vadose zone soil (~0-14 feet bgs) has been remediated based on the non-detectable TPHg in soil samples collected at depths of 5 and 10 feet bgs. Although TPHg soil concentrations deeper than 15 feet bgs also appear to have experienced reductions, TPHg concentrations between 1,000 to 3,200 mg/kg still persist in the zone from 15-25 feet bgs. This TPHg impact appears most concentrated at a depth of 20 feet bgs, as demonstrated by data from B-7, B-9, and B-10 (Table 2 and Figure 8a).

This new data set indicates that the residual TPHg mass in soil is located at depths (i.e. 15-25 feet bgs) often saturated over recent hydrologic cycles. Future additional remedial measures will need to account for this condition.

Changes in Hydrologic Conditions Over Time

During the time of *Corrective Action Plan* preparation in 2002, these deeper soils (i.e. 20-25 feet bgs) appeared accessible to soil vapor extraction, as maximum depth to water in fall 2001 and 2002 ranged from ~18 to >25 feet bgs (i.e. 25-ft deep wells were dry). However, seasonal low groundwater levels have risen since the SVE/AS system was installed in August 2004, with maximum depths to water in fall 2004 and 2005 ranging from ~15 to ~19 feet bgs. This naturally occurring rise in groundwater has reduced the availability of well screen for soil vapor extraction at depths >18-20 feet bgs.

Post SVE/AS Shut-down Groundwater Quality in Well MW-7

The SVE/AS remedial system was shut down on May 4, 2006 to begin a remedial progress monitoring period for evaluation of temporal trends in the magnitude and extent of dissolved phase gasoline range hydrocarbons in MW-7 (the core plume well). When compared to the first quarter 2006 groundwater analytical data from MW-7, concentrations of dissolved phase hydrocarbons have rebounded slightly. TPHg concentrations in MW-7 rose from 6,500 µg/L (March 2006) to 9,800 µg/L (May 2006), and to 12,000 µg/L (June 2006). Due to the fact that TPHg concentrations have rebounded, it does not appear that extrapolation to of pre-remedial attenuation rates will be applicable at this time for contemplation of closure. It appears that additional remedial measures will be needed to further reduce dissolved-phase TPHg.

Conclusions and Recommendations

- The SVE/AS system has removed an estimated 12,500 lbs of gasoline from the subsurface between July 2004 and May 2006.
- Shallow soil (~0-14 bgs) has been remediated as evidenced by non-detectable TPHg concentrations in recent soil samples from this zone.
- The vertical extent of MTBE in soil has been delineated to <0.1 mg/kg in soil, except for the area of B-6 which contained 0.20 mg/kg MTBE at 30 feet bgs. A nearby sparge-well (located within ~15 feet of B-6) will be sampled to determine potential dissolved-phase MTBE concentrations at that depth, as all of the sparge wells are screened from 28-30 feet bgs.
- The lateral and vertical extent of residual TPHg in soil is understood. This TPHg resides at depth from ~15-25 feet bgs, centered in the area of borings B-7, B-9, and B-10 (i.e. the area from the former USTs and dispensers to the north, northeast, and east). The maximum residual TPHg concentration is 3,200 mg/kg at a depth of 20 feet bgs (near MW-7).
- The majority of residual TPHg in soil resides at depths that have been typically saturated, even at seasonal low water levels, over the past two hydrologic cycles.
- This residual TPHg in saturated zone soil will likely continue to serve as a source of dissolved-phase TPHg, evidenced by the remedial progress groundwater monitoring results for MW-7 in May and June 2006.
- Although the AS system can volatilize dissolved-phase gasoline for capture and treatment by the SVE system, and thus induce partitioning from the sorbed-phase, the process will not be as rapid as direct SVE from an unsaturated soil column.
- Blue Rock recommends performance of a High Dual-Phase Extraction (HDPE) test for the purpose of lowering the water table to induce soil vapor flow from zone of residual TPHg impact (i.e. 15-25 feet bgs). It would be desirable to install at new HDPE test wells with screen across the affected zone of 15-25 feet bgs because the use of existing VEW wells may results in preferentially drawing soil vapor from clean soil (i.e. VEW wells are screened from 5-20 feet bgs). If the HDPE test is effective at lowering the water table and generating substantial TPHg vapor recovery rates, the existing SVE/AS system and catox can be modified to a HDPE system to more aggressively remediate the zone of 15-25 feet bgs.
- In the interim, Blue Rock recommends restarting the SVE/AS system with a focus on the areas of B-7, B-9, and B-10 to continue active remediation until HDPE testing is completed.

Workplan for HDPE Test

Purpose

Blue Rock proposes to perform a HDPE test in order to determine potential process flowrates, contaminant recovery rates, and area of influence. HDPE testing equipment and methodology specific to the proposed test are described and explained below. Because pilot studies are investigatory in nature, in order to be of most value, testing will need to be flexible to adjust to results as they are experienced in the field.

Proposed HDPE Test Well Installation

Blue Rock proposes to install two HDPE test wells proximal to B-7/B-9 and B-10, screened from 15-25 feet bgs (Figure 9). These test wells are proposed because existing VEW wells are screened from 5-20 feet bgs and the potential exists for these wells to draw soil vapor from depth intervals that have now been remediated (i.e. 5-10 feet bgs). Testing on both the new wells and existing wells will help determine the optimum screen interval for future HDPE remediation, if implemented.

Prior to drilling, Blue Rock will prepare site specific Health and Safety Plan and obtain well installation permits from the HCDEH. Prior to conducting and drilling, the site will be marked by Underground Service Alert to identify utilities leading to the site.

A Blue Rock scientist, working under the supervision of a Blue Rock California Professional Geologist, will supervise all drilling and well installation activities. Drilling will be performed by a C-57 licensed driller using a truck-mounted rill-rig equipped with hollow-stem augers. During drilling, soil samples will be collected at five-foot intervals in a California Modified Split-Spoon sampler lined with clean, brass tubes. The Blue Rock scientist will log soil types in accordance with the Unified Soil Classification System. Additionally, soil samples will be screened for the presence of volatile petroleum hydrocarbon vapors with a photo-ionizing organic vapor meter (OVM). No soil samples from these borings will be submitted for laboratory analysis because the current distribution hydrocarbons in soil is well understood.

Blue Rock will supervise construction of monitoring wells in the boreholes. The HDPE test wells will be constructed as: 8-inch diameter boring. 2-inch diameter SCH 40 PVC casing. 0.01" well screen 15-25feet bgs. #2/12 Lonestar Sand 14-25 feet bgs. Bentonite 12-14 feet bgs. Cement grout 0-12 feet bgs. A tamper-resistant box will be concreted in place over each wellhead.

The wells will be developed by surging and bailing no earlier than 72 hours following installation. Development will involve the removal of water from each well until such time that it is relatively free of sediment, and pH, temperature, and conductivity parameters have stabilized. It is anticipated that the water volume removed will not exceed 10 saturated casing volumes. The new wells and sampling points will be surveyed according to GeoTracker requirements.

Prior to, and between, use all downhole drilling and sampling equipment will either be steam-cleaned or washed in an Alconox® solution followed by double rinse in clean tap water. Soil cuttings and auger/sampler rinseate will be stored in labeled 55-gallon drums on-site pending appropriate disposal. Blue Rock will utilize the analytical results for soil and/or water samples collected from the borings to coordinate soil and water recycling/disposal.

Proposed HDPE Testing

Air Permitting

Applicable permits will be obtained, if needed, from the Air Pollution Control District (APCD) before testing occurs. The APCD will be provided with any requested information related to test procedures and process stream treatment.

HDPE Equipment

A mobile HDPE unit will be mobilized to the site. The unit is truck mounted and consists of liquid-ring pump capable of producing 29-inches Hg vacuum and a thermal oxidizer capable of treating an air flow of 150 scfm at 20-inches Hg. An onboard electric generator powers the equipment and onboard propane tanks provide supplemental fuel for the thermal oxidizer. A unit intake hose will be connected to the well through a vacuum cap attached to the wellhead.

An OVM will be used to monitor influent air concentrations. A flow sensor will measure process air stream volumetric flow and a separate flow meter will record gallons of water pumped. Extracted water will be stored in a 5,000-20,000 gallon above-ground storage tank to be mobilized to the site.

HDPE Test Procedures

The newly installed HDPE test wells will be utilized as primary test wells. A select number of existing VEW wells and/or MW-7 will also be tested after successful testing of the new HDPE wells. Testing on wells with different construction will help determine which configuration is better for HDPE use. Typically, it is beneficial to depress the water table while generating the slowest groundwater extraction rate possible.

All of the surrounding wells, without occluded screens, will be utilized for soil vapor vacuum radius of influence monitoring, and all wells will be used for groundwater drawdown monitoring. Prior to initiating test extraction, all monitoring wells will be opened and allowed to equilibrate. The initial depth to water readings will be collected using a water sounder. Vacuum caps will then be attached to the wells and background vacuum or pressure readings will be collected.

A stinger hose or pipe will be lowered into each test well through a vacuum tight cap. The stinger end will be placed several inches into the static water. The HDPE unit will be engaged and testing will begin. Water and vapor (dual phases) will be extracted simultaneously by the high vacuum produced by the liquid-ring pump. If well recharge is slower than the water pumping rate, the test well can be dewatered. If dewatering appears to be occurring, the stinger

intake will continued to be lowered into the well until near well bottom, thereby maximizing the amount of screen exposed for vapor extraction.

HDPE testing will be proceed over the course of approximately 5 days, at times using a single test well or a combination of test wells. The duration of the test is aimed at dewatering a portion of the uppermost saturated zone to determine how a full fledged system will perform. Field conditions experienced at the time of testing may warrant shortening the test. The test will not be extended beyond 5 operating days. During the first day of the test, extraction data will be collected at least hourly. Extraction data collected will include: applied vacuum, water pumping rate, process air flow rate, and field monitoring of hydrocarbon concentrations in process air. On the first test day, vacuum influence and depth to water data will be collected from the surrounding monitoring wells on an hourly basis. If conditions allow, the HDPE unit will be run overnight between test days, although only limited data will be collected during nighttime operations. As testing progresses data collection intervals will likely be lengthened.

Extracted water will be separated by a water knockout and transferred to a holding tank pending profiling and disposal. Extracted air will be routed through the thermal oxidizer to thermally destroy entrained hydrocarbon vapor. A schematic of the test set-up is included in Figure 10.

Collection of HDPE Test Process Water and Soil Vapor Samples

On a daily basis, one influent air sample and one mid-fluent water sample will be collected for laboratory analysis from the respective process streams of the high vacuum unit. The water sample should be considered a mid-fluent sample because it will have been partially stripped of dissolved hydrocarbons by the HDPE process. Theoretically, the stripped hydrocarbon contaminant mass will be accounted for in the air sample results. The air samples will be collected into 1-liter tedlar bags and the water samples will be collected into preserved 40-milliliter VOA bottles. The samples will be labeled, documented on a chain-of-custody form, placed on ice in a cooler (water samples) or in a dark container (air samples), and transported to a licensed analytical laboratory.

Laboratory Analyses of Water and Soil Vapor Samples

The air and water samples will be analyzed by a DHS-certified laboratory for:

- TPHg by EPA Method 5030/8260B
- BTEX by EPA Method 8260B
- MTBE by EPA Method 8260B

Management of HDPE Testing Derived Water

The HDPE test derived water will be chemically profiled for disposition. If possible, a temporary discharge permit will be obtained from the locally owned public treatment works, or the water will be transported off-site to an appropriate wastewater treatment facility for disposition.

Proposed Reporting

The results of the pilot testing and vertical investigation will be used to prepare a report. The report will presents the methods of testing/investigation, results, and conclusions. The report will be supported by data presented in graphical and tabular form. The report will be prepared under the supervision of, and stamped by, a California Professional Geologist at Blue Rock. Required GeoTracker uploads will be made.

Proposed Schedule and Reporting

The following table provides a general schedule for implementation of work proposed herein.

<u>Key Activity</u>	<u>Estimated Date</u>
Submit <i>Workplan</i>	July 20, 2006
Receive HCDEH Approval	August 20, 2006
Install HDPE Wells	August 30, 2006
Perform HDPE Test	September 20, 2006
Prepare Report	October 10, 2006

Project Status

- In early July 2006, The SVE/AS was restarted with focus on the areas of B-7, B-9, and B-10.
- The site is currently being monitored on a quarterly basis per the HCDEH directive directives. The next quarterly sampling event is scheduled for September 2006.
- Blue Rock proposes the reduction in frequency of sampling several wells due to the fact they have been non-detect for an extended period of time. The following table summarizes the proposed monitoring schedule:

Well.	First Quarter	Second Quarter	Third Quarter*	Fourth Quarter	Notes
MW-1	DTW	DTW	DTW	TPHg, BTEX, MTBE & DTW	Clean well
MW-2	DTW	DTW	DTW	TPHg, BTEX, MTBE & DTW	Clean well
MW-3	DTW	DTW	DTW	TPHg, BTEX, MTBE & DTW	Clean well
MW-4	DTW	DTW	DTW	TPHg, BTEX, MTBE & DTW	Clean well
MW-5	TPHg, BTEX, MTBE & DTW	TPHg, BTEX, MTBE & DTW	TPHg, BTEX, MTBE & DTW	TPHg, BTEX, MTBE & DTW	Core plume well
MW-6	TPHg, BTEX, MTBE & DTW	TPHg, BTEX, MTBE & DTW	TPHg, BTEX, MTBE & DTW	TPHg, BTEX, MTBE & DTW	Marginal plume well
MW-7	TPHd, TPHg, BTEX, MTBE & DTW	TPHd, TPHg, BTEX, MTBE & DTW	TPHd, TPHg, BTEX, MTBE & DTW	TPHd, TPHg, BTEX, MTBE & DTW	Core plume well
MW-8	TPHg, BTEX, MTBE & DTW	TPHg, BTEX, MTBE & DTW	TPHg, BTEX, MTBE & DTW	TPHg, BTEX, MTBE & DTW	Marginal plume well
MW-9	DTW	DTW	DTW	TPHg, BTEX, MTBE & DTW	Clean well
MW-10	DTW	DTW	DTW	TPHg, BTEX, MTBE & DTW	Clean well
MW-11	DTW	DTW	DTW	TPHg, BTEX, MTBE & DTW	Clean well
MW-12	TPHg, BTEX, MTBE & DTW	TPHg, BTEX, MTBE & DTW	TPHg, BTEX, MTBE & DTW	TPHg, BTEX, MTBE & DTW	Marginal plume well

Notes:

The Fourth Quarter is selected as the annual monitoring event because that is when groundwater levels are lowest (the seasonal low for the last 5 of 6 years), and saturated columns are often within 15-25 ft bgs where MTBE in soil has been detected.

TPHg by EPA Method 8015M or 8260B

BTEX by EPA Method 8021B or 8260B

MTBE by EPA Method 8260B

DTW = Depth to water

Certification

This report was prepared under the supervision of a California Professional Geologist at Blue Rock. All statements, conclusions, and recommendations are based upon published results from past consultants, field observations by Blue Rock, and analyses performed by a state-certified laboratory as they relate to the time, location, and depth of points sampled by Blue Rock. Interpretation of data, including spatial distribution and temporal trends, are based on commonly used geologic and scientific principles. It is possible that interpretations, conclusions, and recommendations presented in this report may change, as additional data become available and/or regulations change.

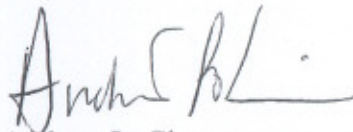
Information and interpretation presented herein are for the sole use of the client and regulating agency. The information and interpretation contained in this document should not be relied upon by a third party.

The service performed by Blue Rock has been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions in the area of the site. No other warranty, expressed or implied, is made.

If you have any questions regarding this project, please contact us at (707) 441-1934.

Sincerely,
Blue Rock Environmental, Inc.

Prepared by:



Andrew LoCicero
Project Scientist

Reviewed by:



Brian Gwinn, PG
Principal Geologist



Attachments:

Table 1:	Well Construction Data
Table 2:	Soil Analytical Data
Table 3:	Groundwater Elevations and Analytical Results
Table 4:	SVE Air Sample Analytical Results
Table 5:	SVE Operational Data
Table 6:	SVE Catox System Influent/Effluent Data
Table 7:	SVE Catox Emissions Calculations
Figure 1:	Site Location Map
Figure 2:	Site Plan
Figure 3a:	Catox Well and Manifold Schematic
Figure 3b:	Air-Sparge Well and Manifold Schematic
Figure 4:	SVE Layout and Radius of Influence
Figure 5:	Groundwater Flow Direction and Gradient – 6/16/06
Figure 6:	Dissolved-phase Hydrocarbon (TPHg) Distribution – 6/16/06
Figure 7a:	Cross Section A-A'
Figure 7b:	Cross Section B-B'
Figure 8a:	TPHg in Soil – 5/9/06
Figure 8b:	Benzene in Soil – 5/9/06
Figure 8c:	MTBE in Soil – 5/9/06
Figure 9:	Proposed DPE Test Wells
Figure 10:	Proposed DPE Test Schematic
Appendix A:	Blue Rock Boring Logs
Appendix B:	Blue Rock Field Data Sheets
Appendix C:	Laboratory Reports and Chain of Custody Forms

cc:

Mr. Greg Pierson

APPENDIX A

SOIL BORING AND WELL CONSTRUCTION LOG: B-5

BLUE ROCK ENVIRONMENTAL, INC.

Page: 1 of 1
Project: NC-24

FIELD LOCATION OF BORING:						DRILLING CONTRACTOR:		BORING DIAMETER:		CLIENT/LOCATION:			
						Fisch Env.		1.5 inches		PICO / 2160 Central, McKinleyville			
						DRILL RIG OPERATOR:		BORING DEPTH:		SCREEN SLOT SIZE:		DRILLING DATE:	
						Dave		29 feet		NA		5/9/06	
						DRILL RIG TYPE:		WELL DEPTH:		WELL MATERIAL:		FILTER PACK:	
						GP 6600		NA		NA			
WELL SEAL:						Hydrated bentonite		PLANNED USE:		LOGGED BY:			
								Sampling		Andrew LoCicero			
SAMPLING METHOD:						Geoprobe / macrocore		MONITORING INST:		APPROVED BY:			
								Thermo PID OVM		Brian Gwinn, PG			
FIRST ENCOUNTERED WATER DEPTH:						~13.5 feet		STATIC WATER DEPTH - DATE:		NA			
WELL CONSTRUCTION DETAIL	WATER LEVEL	DEPTH (FEET)	SAMPLING		GRAPHIC LOG OR USCS CODE	Asphalt / subgrade fill							
			INTERVAL	RECOVERY									
			OVM READING (PPM)										
			1					<p>Sandy SILT w/ clay (MH); brown; moderate/low plasticity; fine - grained poorly graded sand; ~50% silt; firm; moist.</p> <p>Organic Soil (OL/OH); dark brown - moist.</p> <p>Silty SAND w/ clay (SM/SC); brown - gray; moderately graded; fine - grained; ~50% sand; dense; moist.</p> <p>Soil classification for 0 to 10 feet bgs taken from B-B boring log</p> <p>Silty SAND (SM); brown - gray w/ orange mottling; poorly - moderately graded; fine - grained; ~70% sand; dense; moist.</p> <p>Silty SAND (SM); yellow brown; poorly - moderately graded; fine - grained; ~60% sand; med. dense; wet.</p> <p>Silty SAND (SM); brown - gray; poorly - moderately graded; fine - medium grained; ~80% sand; med. dense; wet.</p> <p>Silty SAND to SAND (SM/SP); gray; poorly - moderately graded; fine grained; ~90-95% sand; med. dense; wet.</p>					
			2										
			3										
			4										
			5										
			6										
			7										
			8										
			9										
			10			0							
			11										
			12										
			13										
			14										
			15			60							
			16										
			17										
			18										
			19										
			20			0							
			21										
			22										
			23										
			24										
			25										
			26			10							
			27										
			28										
29		0											
30													

BLUE ROCK ENVIRONMENTAL, INC.

Project: NC-24

FIELD LOCATION OF BORING			DRILLING CONTRACTOR:		BORING DIAMETER:		CLIENT/LOCATION:	
			Fisch Env.		1.5 inches		PICO / 2160 Central, McKinleyville	
			DRILL RIG OPERATOR:		BORING DEPTH:		SCREEN SLOT SIZE:	
			Dave		30 feet		NA	
			DRILL RIG TYPE:		WELL DEPTH:		WELL MATERIAL:	
			GP 6600		NA		NA	
			WELL SEAL:		PLANNED USE:		LOGGED BY:	
			Hydrated bentonite		Sampling		Andrew LoCicero	
			SAMPLING METHOD:		MONITORING INST:		APPROVED BY:	
			Geoprobe / macrocore		Thermo PID OVM		Brian Gwinn, PG	
			FIRST ENCOUNTERED WATER DEPTH:		STATIC WATER DEPTH - DATE:			
			~14.5 feet		NA			
WELL CONSTRUCTION DETAIL	WATER LEVEL	DEPTH (FEET)	SAMPLING		OVM READING (PPM)	GRAPHIC LOG OR USCS CODE		
			INTERVAL	RECOVERY				
		1					Gravel / sub grade fill	
		2						
		3						
		4						
		5						
		6						
		7						
		8						
		9						
		10						
		11						
		12						
		13						
		14						
		15					0	
		16						
		17						
		18						
		19						
		20					60	
		21						
		22						
		23						
		24						
		25					0	
		26						
		27						
		28						
		29						
		30					10	

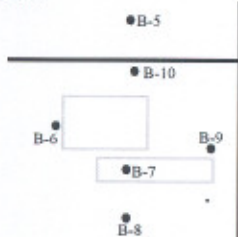
SOIL BORING AND WELL CONSTRUCTION LOG: B-7

BLUE ROCK ENVIRONMENTAL, INC.

Page: 1 of 1

Project: NC-24

FIELD LOCATION OF BORING:



N

DRILLING CONTRACTOR: Fisch Env.	BORING DIAMETER: 1.5 inches	CLIENT/LOCATION: PICO / 2160 Central, McKinleyville	
DRILL RIG OPERATOR: Dave	BORING DEPTH: 30 feet	SCREEN SLOT SIZE: NA	DRILLING DATE: 5/9/06
DRILL RIG TYPE: GP 6600	WELL DEPTH: NA	WELL MATERIAL: NA	FILTER PACK: NA
WELL SEAL: Hydrated bentonite	PLANNED USE: Sampling	LOGGED BY: Andrew LoCicero	

WELL CONSTRUCTION DETAIL	WATER LEVEL	DEPTH (FEET)	SAMPLING		OVM READING (PPM)	GRAPHIC LOG OR USCS CODE	SAMPLING METHOD: Geoprobe / macrocore		MONITORING INST: Thermo PID OVM	APPROVED BY: Brian Gwinn, PG
			INTERVAL	RECOVERY			FIRST ENCOUNTERED WATER DEPTH: ~11 feet		STATIC WATER DEPTH - DATE: NA	

		1					Gravel / subgrade fill
		2					
		3					
		4					
		5			0		Silty SAND and Clayey SAND (SM/SC); brown; poorly - moderately graded; fine - grained; ~50% sand; med dense; damp - moist.
		6	▼	▼			
		7					
		8					
		9					
		10			0		Silty SAND and Clayey SAND (SM/SC); yellow - brown; poorly - moderately graded; fine - grained; ~50% sand; dense; moist.
		11	▼	▼			
		12					
		13					
		14					
		15			0		Silty SAND (SM); brown - gray; poorly - moderately graded; fine - grained; ~80% sand; med. dense; wet.
		16	▼	▼			
		17					
		18					
		19					
		20			120		Silty SAND (SM); brown - gray; poorly - moderately graded; fine - grained; ~80% sand; med. dense; wet.
		21	▼	▼			
		22					
		23					
		24					Silty SAND (SM); brown - gray; poorly - moderately graded; fine - grained; ~80% sand; med. dense; wet.
		25					
		26	▼	▼	0		
		27					
		28					
		29					Silty SAND (SM); gray; poorly - moderately graded; fine - grained; ~80% sand; dense; wet.
		30	▼	▼	0		

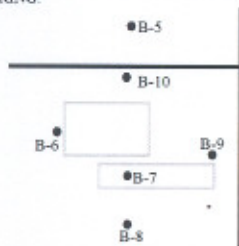
SOIL BORING AND WELL CONSTRUCTION LOG: B-8

BLUE ROCK ENVIRONMENTAL, INC.

Page: 1 of 1

Project: NC-24

FIELD LOCATION OF BORING:



DRILLING CONTRACTOR: Fisch Env.	BORING DIAMETER: 1.5 inches	CLIENT/LOCATION: PICO / 2160 Central, McKinleyville	
DRILL RIG OPERATOR: Dave	BORING DEPTH: 30 feet	SCREEN SLOT SIZE: NA	DRILLING DATE: 5/9/06
DRILL RIG TYPE: GP 6600	WELL DEPTH: NA	WELL MATERIAL: NA	FILTER PACK: NA
WELL SEAL: Hydrated bentonite	PLANNED USE: Sampling	LOGGED BY: Andrew LoCicero	

WELL CONSTRUCTION DETAIL	WATER LEVEL	DEPTH (FEET)	SAMPLING INTERVAL	RECOVERY	OVM READING (PPM)	GRAPHIC LOG OR USCS CODE	SAMPLING METHOD: Geoprobe / macrocore	MONITORING INST: Thermo PID OVM	APPROVED BY: Brian Gwinn, PG
							FIRST ENCOUNTERED WATER DEPTH: ~10 feet	STATIC WATER DEPTH - DATE: NA	

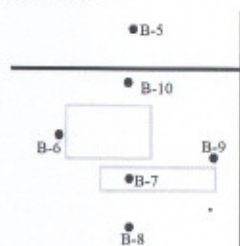
		1					Gravel / Subgrade fill		
		2							
		3							
		4							
		5					Silty SAND w/ clay (SM/SC); brown - orange mottling moderately graded; fine - grained; ~50% sand; dense; moist.		
		6							
		7							
		8							
		9							
		10			0		Soil classification for 0 to 10 feet bgs taken from VEW-1 boring log		
		11							
		12							
		13							
		14							
		15			0		Silty SAND and Clayey SAND (SM/SC); brown - gray w/ orange mottling; poorly - moderately graded; fine - grained; ~50% sand; dense; moist.		
		16							
		17							
		18							
		19							
		20			0		Silty SAND (SM); brown - gray; poorly - moderately graded; fine - grained; ~70% sand; med. dense; wet.		
		21							
		22							
		23							
		24							
		25					Silty SAND to SAND (SM/SP); gray; poorly - moderately graded; fine - grained; ~90 - 95% sand; med. dense; wet.		
		26			0				
		27							
		28							
		29					Silty SAND (SM); brown - gray; poorly - moderately graded; fine - grained; ~80% sand; med. dense; wet.		
		30			10				

SOIL BORING AND WELL CONSTRUCTION LOG: B-9

BLUE ROCK ENVIRONMENTAL, INC.

Page: 1 of 1
Project: NC-24

FIELD LOCATION OF BORING:



DRILLING CONTRACTOR: Fisch Env.	BORING DIAMETER: 1.5 inches	CLIENT/LOCATION: PICO / 2160 Central, McKinleyville	
DRILL RIG OPERATOR: Dave	BORING DEPTH: 30 feet	SCREEN SLOT SIZE: NA	DRILLING DATE: 5/9/06
DRILL RIG TYPE: GP 6600	WELL DEPTH: NA	WELL MATERIAL: NA	FILTER PACK: NA
WELL SEAL: Hydrated bentonite	PLANNED USE: Sampling	LOGGED BY: Andrew LoCicero	

WELL CONSTRUCTION DETAIL	WATER LEVEL	DEPTH (FEET)	SAMPLING		OVM READING (PPM)	GRAPHIC LOG OR USCS CODE	SAMPLING METHOD: Geoprobe / macrocore		MONITORING INST: Thermo PID OVM	APPROVED BY: Brian Gwinn, PG
			INTERVAL	RECOVERY			FIRST ENCOUNTERED WATER DEPTH: ~11 feet		STATIC WATER DEPTH - DATE: NA	

		1					Gravel / subgrade fill
		2					
		3					
		4					
		5			0		Silty SAND w/ clay (SM/SC); brown - orange mottling; moderately graded; fine - grained; ~50% sand; dense; moist.
		6	▼	▼			
		7					
		8					
		9					
		10			0		Soil classification for 0 to 10 feet bgs taken from SVB-1 boring log
		11	▼	▼			
		12					
		13					
		14					
		15			20		Silty SAND and Clayey SAND (SM/SC); brown - gray w/ orange mottling; poorly - moderately graded; fine - grained; ~60% sand; dense; moist.
		16	▼	▼			
		17					
		18					
		19					
		20			0		Silty SAND and Clayey SAND (SM/SC); brown - gray; moderately graded; . fine - grained; ~60% sand; med. dense; wet.
		21	▼	▼			
		22					
		23					
		24					
		25					Silty SAND (SM); brown - gray; poorly - moderately graded; fine - grained; ~80% sand; med. dense; wet.
		26	▼	▼	0		
		27					
		28					
		29					
		30	▼	▼	0		Silty SAND to SAND (SM/SP); gray; poorly - moderately graded; . fine - grained; ~90 - 95% sand; med. dense; wet.

SOIL BORING AND WELL CONSTRUCTION LOG: B-10

BLUE ROCK ENVIRONMENTAL, INC.

Page: 1 of 1
Project: NC-24

FIELD LOCATION OF BORING:					DRILLING CONTRACTOR:		BORING DIAMETER:		CLIENT/LOCATION:			
					Fisch Env.		1.5 inches		PICO / 2160 Central, McKinleyville			
					DRILL RIG OPERATOR:		BORING DEPTH:		SCREEN SLOT SIZE:		DRILLING DATE:	
					Dave		30 feet		NA		5/9/06	
					DRILL RIG TYPE:		WELL DEPTH:		WELL MATERIAL:		FILTER PACK:	
					GP 6600		NA		NA			
WELL SEAL:					Hydrated bentonite		PLANNED USE:		LOGGED BY:			
							Sampling		Andrew LoCicero			
SAMPLING METHOD:					Geoprobe / macrocore		MONITORING INST:		APPROVED BY:			
							Thermo PID OVM		Brian Gwinn, PG			
FIRST ENCOUNTERED WATER DEPTH:					~15 feet		STATIC WATER DEPTH - DATE:		NA			
WELL CONSTRUCTION DETAIL	WATER LEVEL	DEPTH (FEET)	SAMPLING		GRAPHIC LOG OR USCS CODE	Gravel Fill						
			INTERVAL	RECOVERY								
			OVM READING (PPM)									
			1									
			2					Sandy SILT w/ clay (MH); brown; moderate plasticity; fine - grained poorly graded sand; firm; moist.				
			3									
			4									
			5					Organic Soil (OL/OH); dark brown - moist, no odor.				
			6									
			7									
			8									
			9					Silty SAND w/ clay (SM/SC); brown - gray; moderately graded; fine - grained; ~50% sand; dense; moist, no odor.				
			10				0					
			11	▼		▼		Soil classification for 0 to 10 feet bgs taken from B-B boring log				
			12									
			13									
			14									
			15				60	Silty SAND and Clayey SAND (SM/SC); brown - gray w/ orange mottling; poorly - moderately graded; fine - grained; ~50% sand; dense; moist.				
			16	▼		▼						
			17									
			18									
			19									
			20				150	Silty SAND (SM); brown - gray; poorly - moderately graded; fine - grained; ~80% sand; med. dense to loose; wet.				
			21	▼		▼						
			22									
			23									
			24									
			25				750	Silty SAND (SM); brown - gray; poorly - moderately graded; fine - grained; ~80% sand; med. dense; wet.				
			26	▼		▼						
			27									
			28									
29				Silty SAND to SAND (SM/SP); gray; poorly - moderately graded; fine - grained; ~90 - 95% sand; med. dense; wet.								
30	▼	▼	0									

APPENDIX B

NC-24

Former Mckinleyville BP

REMEDIATION SYSTEM O&M FORM

DATE 5/1/06
TECH. AL #52

	ARRIVAL	DEPARTURE	
Time	10:00	14:00	
SYSTEM STATUS	up	up	(up/down)
Manual Dilution Valve Position	0	0	% open
Vacuum (AV)	20	20	in. H2O
TPH Concentration In (Influent)		20	ppm
Well + Dilution Air Flow Rate (V1)	314		scfm
Oxidizer Pressure (OP1)			in. H2O
Temperature Controller (T1)	792		°F
Recirculation valve position	4	4	# Turns open
TPH Concentration Out (Effluent)	0	0	ppm
Unit Operational Time		about 4 hrs	hours

	CHECKED	REPLACED
Water Knockout Liquid level	✓	
Sparge Air Compressor Filter	✓	
Grease Zerk Fittings	✓	
Blower Oil	✓	

May 1 13:30

Extraction Wells	Vac. in. H2O	depth to water feet	valve position % open (on/off)	OVM reading ppm
VE-1	—		0	
VE-2	—		0	
VE-3	24		100	
VE-4	20		100	
VE-5	50		100	
VE-6 (MW-5)	20		100	

psi / cfm

Air Sparging Wells	sparge press. in. SCFM	depth to water feet	valve position % open (on/off)
SW-1	10		100
SW-2	10		↓
SW-3	10		↓
SW-4	10		↓
SW-5	9		↓
SW-6	12		↓

Remarks:

Water Drums Onsite

GAGING DATA/PURGE CALCULATIONS

Job No.: NC-24 Location: 2160 ^{Central} McKinleyville Date: 5/19/06 Tech(s): JL.

WELL NO.	DIA. (in.)	DTB (ft.)	DTW (ft.)	ST (ft.)	CV (gal.)	PV (gal.)	SPH (ft.)	NOTES
MW-1	2"		10.33					
MW-2			10.40					
MW-3			9.33					
MW-4			10.65					
MW-5			9.99					
MW-6			11.06					
MW-7		21.25	10.40	10.85	1.73	5.19	0	DO = 0.80
MW-8			10.20					
MW-9			8.63					
MW-10			8.99					
MW-11			9.43					
MW-12			9.78					

Explanation:

DIA. = Well Diameter

DTB = Depth to Bottom

DTW = Depth to Water

ST = Saturated Thickness (DTB-DTW)

CV = Casing Volume (ST x cf)

PV = Purge Volume (standard 3 x CV,
well development 10 x CV)

SPH = Thickness of Separate Phase Hydrocarbons

Conversion Factors (cf):

2 in. dia. well cf = 0.16 gal./ft.

4 in. dia. well cf = 0.65 gal./ft.

6 in. dia. well cf = 1.44 gal./ft.



BLUE ROCK
ENVIRONMENTAL, INC.

PURGING DATA

SHEET 1 OF 1

Job No.: NC-24 Location: 2160 Central Ave Date: 5/19/06 Tech: JL

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH	
<u>MW-7</u>			---	---	---	Sample for:
Calc. purge	<u>12:45</u>	<u>0.25</u>	<u>129</u>	<u>63.0</u>	<u>6.53</u>	TPHg <input checked="" type="checkbox"/> TPHd <input checked="" type="checkbox"/> 8260
volume	<u>12:50</u>	<u>2.50</u>	<u>124</u>	<u>61.8</u>	<u>6.34</u>	BTEX <input checked="" type="checkbox"/> MTBE <input checked="" type="checkbox"/> Metals
<u>5.19</u>	<u>12:55</u>	<u>5.20</u>	<u>118</u>	<u>61.7</u>	<u>6.29</u>	Purging Method:
						<u>PVC bailer</u> / Pump
COMMENTS: color, turbidity, recharge, sheen						Sampling Method:
<u>clear / to low mod / mod / no sheen / odor</u>						Dedicated / <u>Disposable bailer</u>
						Sample at: <u>13:00</u>

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH	
			---	---	---	Sample for:
Calc. purge						TPHg TPHd 8260
volume						BTEX MTBE Metals
						Purging Method:
						PVC bailer / Pump
COMMENTS: color, turbidity, recharge, sheen						Sampling Method:
						Dedicated / Disposable bailer
						Sample at:

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH	
			---	---	---	Sample for:
Calc. purge						TPHg TPHd 8260
volume						BTEX MTBE Metals
						Purging Method:
						PVC bailer / Pump
COMMENTS: color, turbidity, recharge, sheen						Sampling Method:
						Dedicated / Disposable bailer
						Sample at:

GAGING DATA/PURGE CALCULATIONS

Job No.: NC-24 Location: Z100 Central Ave. McKinleyville Date: 6/16/06 Tech(s): JL

WELL NO.	DIA. (in.)	DTB (ft.)	DTW (ft.)	ST (ft.)	CV (gal.)	PV (gal.)	SPH (ft.)	NOTES
MW-1	2	19.93	12.16					D.O. = 6.30
MW-2		22.28	11.86					D.O. = 9.02
MW-3		19.62	11.02					D.O. = 7.92
MW-4		21.67	12.23					D.O. = 8.09
- MW-5		20.87	11.25	9.62	1.53	4.59	○	D.O. = 0.42
- MW-6		22.19	12.51	9.68	1.54	4.62	○	D.O. = 1.99
- MW-7		20.74	11.74	9.00	1.44	4.32	○	D.O. = 0.97
- MW-8		24.87	11.64	13.23	2.11	6.33	○	D.O. = 6.85
MW-9		20.02	10.17					D.O. = 8.16
MW-10		23.61	10.26					D.O. = 7.50
MW-11		24.14	10.54					D.O. = 5.95
- MW-12	↓	25.02	11.08	13.94	2.23	6.69	○	D.O. = 1.28

Explanation:

DIA. = Well Diameter

DTB = Depth to Bottom

DTW = Depth to Water

ST = Saturated Thickness (DTB-DTW)

CV = Casing Volume (ST x cf)

PV = Purge Volume (standard 3 x CV,
well development 10 x CV)

SPH = Thickness of Separate Phase Hydrocarbons

Conversion Factors (cf):

2 in. dia. well cf = 0.16 gal./ft.

4 in. dia. well cf = 0.65 gal./ft.

6 in. dia. well cf = 1.44 gal./ft.



BLUE ROCK
ENVIRONMENTAL, INC.

PURGING DATA

SHEET

1 OF 2

Job No.: NC-24 Location: 2160 Central Ave Date: 6/16/06 Tech: JL

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH
<u>MW-5</u>			---	---	---
Calc. purge	<u>10:55</u>	<u>0.25</u>	<u>62</u>	<u>63.3</u>	<u>5.89</u>
volume	<u>11:00</u>	<u>2.25</u>	<u>99</u>	<u>61.8</u>	<u>6.13</u>
<u>4.59</u>	<u>11:05</u>	<u>4.60</u>	<u>104</u>	<u>61.0</u>	<u>6.19</u>
Sample for:					
TPHg TPHd 8260					
BTEx MTBE Metals					
Purging Method:					
<u>PVC bailer</u> / Pump					
COMMENTS: color, turbidity, recharge, sheen					
<u>clear / heavy / mod / no sheen / odor</u>					
Sampling Method:					
Dedicated / <u>Disposable bailer</u>					
Sample at: <u>11:10</u>					

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH
<u>MW-6</u>			---	---	---
Calc. purge	<u>10:35</u>	<u>0.25</u>	<u>45</u>	<u>60.4</u>	<u>6.20</u>
volume	<u>10:40</u>	<u>2.25</u>	<u>44</u>	<u>58.6</u>	<u>6.02</u>
<u>4.62</u>	<u>10:45</u>	<u>4.65</u>	<u>44</u>	<u>58.4</u>	<u>5.95</u>
Sample for:					
TPHg TPHd 8260					
BTEx MTBE Metals					
Purging Method:					
<u>PVC bailer</u> / Pump					
COMMENTS: color, turbidity, recharge, sheen					
<u>clear / mod / mod / no sheen / no odor</u>					
Sampling Method:					
Dedicated / <u>Disposable bailer</u>					
Sample at: <u>10:50</u>					

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH
<u>MW-7</u>			---	---	---
Calc. purge	<u>10:15</u>	<u>0.25</u>	<u>89</u>	<u>65.3</u>	<u>5.89</u>
volume	<u>10:20</u>	<u>2.25</u>	<u>137</u>	<u>62.9</u>	<u>6.03</u>
<u>4.32</u>	<u>10:25</u>	<u>4.35</u>	<u>132</u>	<u>62.6</u>	<u>6.12</u>
Sample for:					
TPHg TPHd 8260					
BTEx MTBE Metals					
Purging Method:					
<u>PVC bailer</u> / Pump					
COMMENTS: color, turbidity, recharge, sheen					
<u>clear / mod / mod / sheen / odor</u>					
Sampling Method:					
Dedicated / <u>Disposable bailer</u>					
Sample at: <u>10:30</u>					

PURGING DATA

SHEET

2 OF 2

Job No.: NC-24 Location: 2160 Central Ave. Date: 6/16/06 Tech: J.L.

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH	
MW-8			---	---	---	Sample for:
Calc. purge	11:15	0.25	134	63.7	5.82	TPHg TPHd 8260
volume	11:20	3.25	117	60.8	5.80	BTEX MTBE Metals
6.33	11:25	6.35	115	61.0	5.81	Purging Method:
						PVC bailer / Pump
COMMENTS: color, turbidity, recharge, sheen						Sampling Method:
clear/mod/mod/no sheen/no odor						Dedicated / Disposable bailer
						Sample at: 11:30

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH	
MW-12			---	---	---	Sample for:
Calc. purge	11:35	0.25	78	62.4	5.66	TPHg TPHd 8260
volume	11:40	3.25	92	60.9	5.69	BTEX MTBE Metals
6.69	11:45	6.70	96	60.7	5.85	Purging Method:
						PVC bailer / Pump
COMMENTS: color, turbidity, recharge, sheen						Sampling Method:
clear/mod/mod/no sheen/no odor						Dedicated / Disposable bailer
						Sample at: 11:50

WELL No.	TIME	VOLUME (gal.)	COND. (mS/cm)	TEMP. (deg. F.)	pH	
			---	---	---	Sample for:
Calc. purge						TPHg TPHd 8260
volume						BTEX MTBE Metals
						Purging Method:
						PVC bailer / Pump
COMMENTS: color, turbidity, recharge, sheen						Sampling Method:
						Dedicated / Disposable bailer
						Sample at:

APPENDIX C



Report Number : 49785

Date : 5/4/2006

Andrew LoCicero
Blue Rock Environmental, Inc.
535 3rd Street, Suite 100
Eureka, CA 95501

Subject : 2 Vapor Samples
Project Name : Former Central BP
Project Number : NC-24

Dear Mr. LoCicero,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed.

Kiff Analytical is certified by the State of California (# 2236). If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

A handwritten signature in black ink, appearing to read "Joel Kiff".

Joel Kiff

Project Name : **Former Central BP**

Project Number : **NC-24**

Sample : **Influent 5/1/06**

Matrix : Air

Lab Number : 49785-01

Sample Date :5/1/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.20	0.20	mg/m3	EPA 8260B	5/2/2006
Toluene	< 0.20	0.20	mg/m3	EPA 8260B	5/2/2006
Ethylbenzene	< 0.20	0.20	mg/m3	EPA 8260B	5/2/2006
Total Xylenes	< 0.20	0.20	mg/m3	EPA 8260B	5/2/2006
Methyl-t-butyl ether (MTBE)	< 0.20	0.20	mg/m3	EPA 8260B	5/2/2006
Benzene (in ppmv)	< 0.050	0.050	ppmv	EPA 8260B	5/2/2006
Toluene (in ppmv)	< 0.050	0.050	ppmv	EPA 8260B	5/2/2006
Ethylbenzene (in ppmv)	< 0.050	0.050	ppmv	EPA 8260B	5/2/2006
Total Xylenes (in ppmv)	< 0.050	0.050	ppmv	EPA 8260B	5/2/2006
Methyl-t-butyl ether (in ppmv)	< 0.10	0.10	ppmv	EPA 8260B	5/2/2006
TPH as Gasoline	< 20	20	mg/m3	EPA 8260B	5/2/2006
TPH as Gasoline (in ppmv)	< 5.0	5.0	ppmv	EPA 8260B	5/2/2006
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	5/2/2006
4-Bromofluorobenzene (Surr)	101		% Recovery	EPA 8260B	5/2/2006

Approved By:

Joel Kiff





Report Number : 49785

Date : 5/4/2006

Project Name : **Former Central BP**

Project Number : **NC-24**

Sample : **Effluent 5/1/06**

Matrix : Air

Lab Number : 49785-02

Sample Date :5/1/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.20	0.20	mg/m3	EPA 8260B	5/2/2006
Toluene	< 0.20	0.20	mg/m3	EPA 8260B	5/2/2006
Ethylbenzene	< 0.20	0.20	mg/m3	EPA 8260B	5/2/2006
Total Xylenes	< 0.20	0.20	mg/m3	EPA 8260B	5/2/2006
Methyl-t-butyl ether (MTBE)	< 0.20	0.20	mg/m3	EPA 8260B	5/2/2006
Benzene (in ppmv)	< 0.050	0.050	ppmv	EPA 8260B	5/2/2006
Toluene (in ppmv)	< 0.050	0.050	ppmv	EPA 8260B	5/2/2006
Ethylbenzene (in ppmv)	< 0.050	0.050	ppmv	EPA 8260B	5/2/2006
Total Xylenes (in ppmv)	< 0.050	0.050	ppmv	EPA 8260B	5/2/2006
Methyl-t-butyl ether (in ppmv)	< 0.10	0.10	ppmv	EPA 8260B	5/2/2006
TPH as Gasoline	< 20	20	mg/m3	EPA 8260B	5/2/2006
TPH as Gasoline (in ppmv)	< 5.0	5.0	ppmv	EPA 8260B	5/2/2006
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	5/2/2006
4-Bromofluorobenzene (Surr)	101		% Recovery	EPA 8260B	5/2/2006

Approved By:

Joel Kiff

Report Number : 49785

Date : 5/4/2006

QC Report : Method Blank Data

Project Name : **Former Central BP**

Project Number : **NC-24**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.20	0.20	mg/m3	EPA 8260B	5/2/2006
Toluene	< 0.20	0.20	mg/m3	EPA 8260B	5/2/2006
Ethylbenzene	< 0.20	0.20	mg/m3	EPA 8260B	5/2/2006
Total Xylenes	< 0.20	0.20	mg/m3	EPA 8260B	5/2/2006
Methyl-t-butyl ether (MTBE)	< 0.20	0.20	mg/m3	EPA 8260B	5/2/2006
Benzene (in ppmv)	< 0.050	0.050	ppmv	EPA 8260B	5/2/2006
Toluene (in ppmv)	< 0.050	0.050	ppmv	EPA 8260B	5/2/2006
Ethylbenzene (in ppmv)	< 0.050	0.050	ppmv	EPA 8260B	5/2/2006
Total Xylenes (in ppmv)	< 0.050	0.050	ppmv	EPA 8260B	5/2/2006
Methyl-t-butyl ether (in ppmv)	< 0.10	0.10	ppmv	EPA 8260B	5/2/2006
TPH as Gasoline	< 20	20	mg/m3	EPA 8260B	5/2/2006
TPH as Gasoline (in ppmv)	< 5.0	5.0	ppmv	EPA 8260B	5/2/2006
Toluene - d8 (Surr)	99.5		%	EPA 8260B	5/2/2006
4-Bromofluorobenzene (Surr)	98.5		%	EPA 8260B	5/2/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
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KIFF ANALYTICAL, LLC

2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

Approved By:

Joel Kiff





2795 2nd Street, Suite 300
Davis, CA 95616
Lab: 530.297.4800
Fax: 530.297.4808

Lab No. 49785 Page 1 of 1

Project Contact (Hardcopy or PDF To):

Andrew Lolicero

California EDF Report? ☐ Yes ☒ No

Company/Address: Blue Rock Env.

535 3rd St, #100 Eureka, CA 95501

Recommended but not mandatory to complete this section:

Sampling Company Log Code: . . .

Phone No.:

707 441 1934

FAX No.:

707 441 1949

Global ID:

ad

Project Number:

NC-24

P.O. No:

EDF Deliverable To (Email Address):

andrew@bluerockenv.com

Project Name:

Former Central BP

Sampler Signature:

H. H. C.

Project Address:

2160 Central Ave.

McKinleyville CA

Sampling

Container

Preservative

Matrix

Sample Designation

Date

Time

40 ml VOA

SLEEVE

Test for

HCl

HNO₃

ICE

NONE

Dark

WATER

SOIL

Air

BTEX (8021B)

BTEX/TPH Gas/MTBE (8021B/M8015)

TPH as Diesel (M8015)

TPH as Motor Oil (M8015)

TPH Gas/BTEX/MTBE (8260B)

5 Oxygenates/TPH Gas/BTEX (8260B)

7 Oxygenates/TPH Gas/BTEX (8260B)

5 Oxygenates (8260B)

7 Oxygenates (8260B)

Lead Scav. (1,2 DCA & 1,2 EDB - 8260B)

EPA 8260B (Full List)

Volatile Halocarbons (EPA 8260B)

Lead (7421/239.2) TOTAL (X) W.E.T. (X)

12 hr/24 hr/48 hr/72 hr/Full

For Lab Use Only

Relinquished by:

H. H. C.

Date

Time

Received by:

FBP BX

Remarks:

results in ppm
+ mg/m³

Relinquished by:

Date

Time

Received by:

Relinquished by:

Date

Time

Received by Laboratory:

Thomas Adam Kiff Analytical LLC

Bill to:

BR Foster City



Report Number : 49961

Date : 5/17/2006

Andrew LoCicero
Blue Rock Environmental, Inc.
535 3rd Street, Suite 100
Eureka, CA 95501

Subject : 30 Soil Samples
Project Name : Former Central BP
Project Number : NC-24

Dear Mr. LoCicero,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed.

Kiff Analytical is certified by the State of California (# 2236). If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

A handwritten signature in black ink, appearing to read "Joel Kiff".

Joel Kiff

Project Name : **Former Central BP**

Project Number : **NC-24**

Sample : **B-8 10'**

Matrix : Soil

Lab Number : 49961-01

Sample Date :5/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Total Xylenes	0.0086	0.0050	mg/Kg	EPA 8260B	5/15/2006
Methyl-t-butyl ether (MTBE)	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	5/15/2006
Toluene - d8 (Surr)	95.3		% Recovery	EPA 8260B	5/15/2006
4-Bromofluorobenzene (Surr)	101		% Recovery	EPA 8260B	5/15/2006

Sample : **B-8 15'**

Matrix : Soil

Lab Number : 49961-02

Sample Date :5/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/16/2006
Toluene	0.080	0.0050	mg/Kg	EPA 8260B	5/16/2006
Ethylbenzene	0.24	0.0050	mg/Kg	EPA 8260B	5/16/2006
Total Xylenes	9.4	0.050	mg/Kg	EPA 8260B	5/16/2006
Methyl-t-butyl ether (MTBE)	0.015	0.0050	mg/Kg	EPA 8260B	5/16/2006
TPH as Gasoline	370	5.0	mg/Kg	EPA 8260B	5/16/2006
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	5/16/2006
4-Bromofluorobenzene (Surr)	107		% Recovery	EPA 8260B	5/16/2006

Approved By:

Joel Kiff

Project Name : **Former Central BP**

Project Number : **NC-24**

Sample : **B-8 20'**

Matrix : Soil

Lab Number : 49961-03

Sample Date :5/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	0.046	0.0050	mg/Kg	EPA 8260B	5/15/2006
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Methyl-t-butyl ether (MTBE)	0.010	0.0050	mg/Kg	EPA 8260B	5/15/2006
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	5/15/2006
Toluene - d8 (Surr)	99.1		% Recovery	EPA 8260B	5/15/2006
4-Bromofluorobenzene (Surr)	102		% Recovery	EPA 8260B	5/15/2006

Sample : **B-8 25'**

Matrix : Soil

Lab Number : 49961-04

Sample Date :5/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Methyl-t-butyl ether (MTBE)	0.021	0.0050	mg/Kg	EPA 8260B	5/15/2006
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	5/15/2006
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	5/15/2006
4-Bromofluorobenzene (Surr)	103		% Recovery	EPA 8260B	5/15/2006

Approved By:

Joel Kiff

Project Name : **Former Central BP**

Project Number : **NC-24**

Sample : **B-8 30'**

Matrix : Soil

Lab Number : 49961-05

Sample Date :5/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	0.032	0.0050	mg/Kg	EPA 8260B	5/15/2006
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Ethylbenzene	0.0055	0.0050	mg/Kg	EPA 8260B	5/15/2006
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Methyl-t-butyl ether (MTBE)	0.20	0.0050	mg/Kg	EPA 8260B	5/15/2006
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	5/15/2006
Toluene - d8 (Surr)	103		% Recovery	EPA 8260B	5/15/2006
4-Bromofluorobenzene (Surr)	106		% Recovery	EPA 8260B	5/15/2006

Sample : **B-7 5'**

Matrix : Soil

Lab Number : 49961-06

Sample Date :5/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Methyl-t-butyl ether (MTBE)	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	5/15/2006
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	5/15/2006
4-Bromofluorobenzene (Surr)	108		% Recovery	EPA 8260B	5/15/2006

Approved By:

Joel Kiff

Project Name : **Former Central BP**

Project Number : **NC-24**

Sample : **B-7 10'**

Matrix : Soil

Lab Number : 49961-07

Sample Date :5/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Methyl-t-butyl ether (MTBE)	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	5/15/2006
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	5/15/2006
4-Bromofluorobenzene (Surr)	111		% Recovery	EPA 8260B	5/15/2006

Sample : **B-7 15'**

Matrix : Soil

Lab Number : 49961-08

Sample Date :5/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Methyl-t-butyl ether (MTBE)	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	5/15/2006
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	5/15/2006
4-Bromofluorobenzene (Surr)	107		% Recovery	EPA 8260B	5/15/2006

Approved By:

Joel Kiff



Report Number : 49961

Date : 5/17/2006

Project Name : **Former Central BP**Project Number : **NC-24**Sample : **B-7 20'**

Matrix : Soil

Lab Number : 49961-09

Sample Date :5/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	2.4	0.40	mg/Kg	EPA 8260B	5/16/2006
Toluene	94	0.40	mg/Kg	EPA 8260B	5/16/2006
Ethylbenzene	28	0.40	mg/Kg	EPA 8260B	5/16/2006
Total Xylenes	220	0.40	mg/Kg	EPA 8260B	5/16/2006
Methyl-t-butyl ether (MTBE)	< 0.40	0.40	mg/Kg	EPA 8260B	5/16/2006
TPH as Gasoline	3100	40	mg/Kg	EPA 8260B	5/16/2006
Toluene - d8 (Surr)	98.7		% Recovery	EPA 8260B	5/16/2006
4-Bromofluorobenzene (Surr)	102		% Recovery	EPA 8260B	5/16/2006

Sample : **B-7 25'**

Matrix : Soil

Lab Number : 49961-10

Sample Date :5/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/16/2006
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/16/2006
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/16/2006
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/16/2006
Methyl-t-butyl ether (MTBE)	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/16/2006
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	5/16/2006
Toluene - d8 (Surr)	103		% Recovery	EPA 8260B	5/16/2006
4-Bromofluorobenzene (Surr)	111		% Recovery	EPA 8260B	5/16/2006

Approved By:

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Project Name : **Former Central BP**

Project Number : **NC-24**

Sample : **B-7 30'**

Matrix : Soil

Lab Number : 49961-11

Sample Date :5/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Toluene	0.014	0.0050	mg/Kg	EPA 8260B	5/15/2006
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Total Xylenes	0.010	0.0050	mg/Kg	EPA 8260B	5/15/2006
Methyl-t-butyl ether (MTBE)	0.0071	0.0050	mg/Kg	EPA 8260B	5/15/2006
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	5/15/2006
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	5/15/2006
4-Bromofluorobenzene (Surr)	105		% Recovery	EPA 8260B	5/15/2006

Sample : **B-9 10'**

Matrix : Soil

Lab Number : 49961-12

Sample Date :5/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Methyl-t-butyl ether (MTBE)	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	5/15/2006
Toluene - d8 (Surr)	103		% Recovery	EPA 8260B	5/15/2006
4-Bromofluorobenzene (Surr)	106		% Recovery	EPA 8260B	5/15/2006

Approved By:

Joel Kiff

Project Name : **Former Central BP**

Project Number : **NC-24**

Sample : **B-9 15'**

Matrix : Soil

Lab Number : 49961-13

Sample Date :5/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	0.071	0.025	mg/Kg	EPA 8260B	5/16/2006
Toluene	5.7	0.025	mg/Kg	EPA 8260B	5/16/2006
Ethylbenzene	4.1	0.025	mg/Kg	EPA 8260B	5/16/2006
Total Xylenes	89	0.30	mg/Kg	EPA 8260B	5/16/2006
Methyl-t-butyl ether (MTBE)	< 0.025	0.025	mg/Kg	EPA 8260B	5/16/2006
TPH as Gasoline	1400	30	mg/Kg	EPA 8260B	5/16/2006
Toluene - d8 (Surr)	95.0		% Recovery	EPA 8260B	5/16/2006
4-Bromofluorobenzene (Surr)	105		% Recovery	EPA 8260B	5/16/2006

Sample : **B-9 20'**

Matrix : Soil

Lab Number : 49961-14

Sample Date :5/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	0.30	0.15	mg/Kg	EPA 8260B	5/16/2006
Toluene	11	0.15	mg/Kg	EPA 8260B	5/16/2006
Ethylbenzene	19	0.15	mg/Kg	EPA 8260B	5/16/2006
Total Xylenes	140	0.15	mg/Kg	EPA 8260B	5/16/2006
Methyl-t-butyl ether (MTBE)	< 0.15	0.15	mg/Kg	EPA 8260B	5/16/2006
TPH as Gasoline	3200	50	mg/Kg	EPA 8260B	5/17/2006
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	5/16/2006
4-Bromofluorobenzene (Surr)	107		% Recovery	EPA 8260B	5/16/2006

Approved By:

Joel Kiff

Project Name : **Former Central BP**

Project Number : **NC-24**

Sample : **B-9 25'**

Matrix : Soil

Lab Number : 49961-15

Sample Date :5/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/16/2006
Toluene	0.0067	0.0050	mg/Kg	EPA 8260B	5/16/2006
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/16/2006
Total Xylenes	0.025	0.0050	mg/Kg	EPA 8260B	5/16/2006
Methyl-t-butyl ether (MTBE)	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/16/2006
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	5/16/2006
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	5/16/2006
4-Bromofluorobenzene (Surr)	108		% Recovery	EPA 8260B	5/16/2006

Sample : **B-9 30'**

Matrix : Soil

Lab Number : 49961-16

Sample Date :5/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/16/2006
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/16/2006
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/16/2006
Total Xylenes	0.0086	0.0050	mg/Kg	EPA 8260B	5/16/2006
Methyl-t-butyl ether (MTBE)	0.016	0.0050	mg/Kg	EPA 8260B	5/16/2006
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	5/16/2006
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	5/16/2006
4-Bromofluorobenzene (Surr)	104		% Recovery	EPA 8260B	5/16/2006

Approved By:

Joel Kiff



Report Number : 49961

Date : 5/17/2006

Project Name : **Former Central BP**Project Number : **NC-24**Sample : **B-6 15**

Matrix : Soil

Lab Number : 49961-17

Sample Date :5/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Methyl-t-butyl ether (MTBE)	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	5/15/2006
Toluene - d8 (Surr)	99.5		% Recovery	EPA 8260B	5/15/2006
4-Bromofluorobenzene (Surr)	101		% Recovery	EPA 8260B	5/15/2006

Sample : **B-6 20**

Matrix : Soil

Lab Number : 49961-18

Sample Date :5/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.025	0.025	mg/Kg	EPA 8260B	5/16/2006
Toluene	0.065	0.025	mg/Kg	EPA 8260B	5/16/2006
Ethylbenzene	1.0	0.025	mg/Kg	EPA 8260B	5/16/2006
Total Xylenes	8.0	0.090	mg/Kg	EPA 8260B	5/16/2006
Methyl-t-butyl ether (MTBE)	< 0.025	0.025	mg/Kg	EPA 8260B	5/16/2006
TPH as Gasoline	510	9.0	mg/Kg	EPA 8260B	5/16/2006
Toluene - d8 (Surr)	91.9		% Recovery	EPA 8260B	5/16/2006
4-Bromofluorobenzene (Surr)	104		% Recovery	EPA 8260B	5/16/2006

Approved By:

Joel Kiff

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Project Name : **Former Central BP**

Project Number : **NC-24**

Sample : **B-6 25**

Matrix : Soil

Lab Number : 49961-19

Sample Date :5/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Methyl-t-butyl ether (MTBE)	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	5/15/2006
Toluene - d8 (Surr)	96.9		% Recovery	EPA 8260B	5/15/2006
4-Bromofluorobenzene (Surr)	101		% Recovery	EPA 8260B	5/15/2006

Sample : **B-6 30**

Matrix : Soil

Lab Number : 49961-20

Sample Date :5/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/16/2006
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/16/2006
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/16/2006
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/16/2006
Methyl-t-butyl ether (MTBE)	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/16/2006
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	5/16/2006
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	5/16/2006
4-Bromofluorobenzene (Surr)	104		% Recovery	EPA 8260B	5/16/2006

Approved By:

Joel Kiff



Report Number : 49961

Date : 5/17/2006

Project Name : **Former Central BP**Project Number : **NC-24**Sample : **B-10 10'**

Matrix : Soil

Lab Number : 49961-21

Sample Date :5/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/13/2006
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/13/2006
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/13/2006
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/13/2006
Methyl-t-butyl ether (MTBE)	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/13/2006
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	5/13/2006
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	5/13/2006
4-Bromofluorobenzene (Surr)	106		% Recovery	EPA 8260B	5/13/2006

Sample : **B-10 15'**

Matrix : Soil

Lab Number : 49961-22

Sample Date :5/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.025	0.025	mg/Kg	EPA 8260B	5/14/2006
Toluene	0.11	0.025	mg/Kg	EPA 8260B	5/14/2006
Ethylbenzene	1.4	0.025	mg/Kg	EPA 8260B	5/14/2006
Total Xylenes	8.4	0.025	mg/Kg	EPA 8260B	5/14/2006
Methyl-t-butyl ether (MTBE)	< 0.025	0.025	mg/Kg	EPA 8260B	5/14/2006
TPH as Gasoline	1100	40	mg/Kg	EPA 8260B	5/16/2006
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	5/14/2006
4-Bromofluorobenzene (Surr)	103		% Recovery	EPA 8260B	5/14/2006

Approved By:

Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800

Project Name : **Former Central BP**Project Number : **NC-24**Sample : **B-10 20'**

Matrix : Soil

Lab Number : 49961-23

Sample Date :5/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.025	0.025	mg/Kg	EPA 8260B	5/14/2006
Toluene	1.6	0.025	mg/Kg	EPA 8260B	5/14/2006
Ethylbenzene	8.8	0.025	mg/Kg	EPA 8260B	5/14/2006
Total Xylenes	59	0.25	mg/Kg	EPA 8260B	5/17/2006
Methyl-t-butyl ether (MTBE)	< 0.025	0.025	mg/Kg	EPA 8260B	5/14/2006
TPH as Gasoline	1000	25	mg/Kg	EPA 8260B	5/17/2006
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	5/14/2006
4-Bromofluorobenzene (Surr)	104		% Recovery	EPA 8260B	5/14/2006

Sample : **B-10 25'**

Matrix : Soil

Lab Number : 49961-24

Sample Date :5/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	0.11	0.050	mg/Kg	EPA 8260B	5/16/2006
Toluene	8.7	0.050	mg/Kg	EPA 8260B	5/16/2006
Ethylbenzene	2.5	0.050	mg/Kg	EPA 8260B	5/16/2006
Total Xylenes	19	0.050	mg/Kg	EPA 8260B	5/16/2006
Methyl-t-butyl ether (MTBE)	< 0.050	0.050	mg/Kg	EPA 8260B	5/16/2006
TPH as Gasoline	460	5.0	mg/Kg	EPA 8260B	5/16/2006
Toluene - d8 (Surr)	96.1		% Recovery	EPA 8260B	5/16/2006
4-Bromofluorobenzene (Surr)	99.9		% Recovery	EPA 8260B	5/16/2006

Approved By:


Joel Kiff

Project Name : **Former Central BP**

Project Number : **NC-24**

Sample : **B-10 30'**

Matrix : Soil

Lab Number : 49961-25

Sample Date :5/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/13/2006
Toluene	0.012	0.0050	mg/Kg	EPA 8260B	5/13/2006
Ethylbenzene	0.011	0.0050	mg/Kg	EPA 8260B	5/13/2006
Total Xylenes	0.046	0.0050	mg/Kg	EPA 8260B	5/13/2006
Methyl-t-butyl ether (MTBE)	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/13/2006
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	5/13/2006
Toluene - d8 (Surr)	103		% Recovery	EPA 8260B	5/13/2006
4-Bromofluorobenzene (Surr)	103		% Recovery	EPA 8260B	5/13/2006

Sample : **B-5 10'**

Matrix : Soil

Lab Number : 49961-26

Sample Date :5/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/13/2006
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/13/2006
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/13/2006
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/13/2006
Methyl-t-butyl ether (MTBE)	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/13/2006
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	5/13/2006
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	5/13/2006
4-Bromofluorobenzene (Surr)	101		% Recovery	EPA 8260B	5/13/2006

Approved By:

Joel Kiff



Report Number : 49961

Date : 5/17/2006

Project Name : **Former Central BP**

Project Number : **NC-24**

Sample : **B-5 15'**

Matrix : Soil

Lab Number : 49961-27

Sample Date :5/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/14/2006
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/14/2006
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/14/2006
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/14/2006
Methyl-t-butyl ether (MTBE)	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/14/2006
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	5/14/2006
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	5/14/2006
4-Bromofluorobenzene (Surr)	104		% Recovery	EPA 8260B	5/14/2006

Sample : **B-5 20'**

Matrix : Soil

Lab Number : 49961-28

Sample Date :5/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/14/2006
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/14/2006
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/14/2006
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/14/2006
Methyl-t-butyl ether (MTBE)	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/14/2006
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	5/14/2006
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	5/14/2006
4-Bromofluorobenzene (Surr)	103		% Recovery	EPA 8260B	5/14/2006

Approved By:

Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800

Project Name : **Former Central BP**

Project Number : **NC-24**

Sample : **B-5 25'**

Matrix : Soil

Lab Number : 49961-29

Sample Date :5/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	0.0065	0.0050	mg/Kg	EPA 8260B	5/14/2006
Toluene	0.018	0.0050	mg/Kg	EPA 8260B	5/14/2006
Ethylbenzene	0.011	0.0050	mg/Kg	EPA 8260B	5/14/2006
Total Xylenes	0.028	0.0050	mg/Kg	EPA 8260B	5/14/2006
Methyl-t-butyl ether (MTBE)	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/14/2006
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	5/14/2006
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	5/14/2006
4-Bromofluorobenzene (Surr)	106		% Recovery	EPA 8260B	5/14/2006

Sample : **B-5 29'**

Matrix : Soil

Lab Number : 49961-30

Sample Date :5/9/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/14/2006
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/14/2006
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/14/2006
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/14/2006
Methyl-t-butyl ether (MTBE)	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/14/2006
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	5/14/2006
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	5/14/2006
4-Bromofluorobenzene (Surr)	101		% Recovery	EPA 8260B	5/14/2006

Approved By:

Joel Kiff

Report Number : 49961

Date : 5/17/2006

QC Report : Method Blank DataProject Name : **Former Central BP**Project Number : **NC-24**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
Methyl-t-butyl ether (MTBE)	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/15/2006
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	5/15/2006
Toluene - d8 (Surr)	96.6		%	EPA 8260B	5/15/2006
4-Bromofluorobenzene (Surr)	100		%	EPA 8260B	5/15/2006
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/12/2006
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/12/2006
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/12/2006
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/12/2006
Methyl-t-butyl ether (MTBE)	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/12/2006
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	5/12/2006
Toluene - d8 (Surr)	99.9		%	EPA 8260B	5/12/2006
4-Bromofluorobenzene (Surr)	99.9		%	EPA 8260B	5/12/2006
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/16/2006
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/16/2006
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/16/2006
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/16/2006
Methyl-t-butyl ether (MTBE)	< 0.0050	0.0050	mg/Kg	EPA 8260B	5/16/2006
TPH as Gasoline	< 1.0	1.0	mg/Kg	EPA 8260B	5/16/2006
Toluene - d8 (Surr)	99.6		%	EPA 8260B	5/16/2006
4-Bromofluorobenzene (Surr)	101		%	EPA 8260B	5/16/2006

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
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Approved By:

Joel Kiff

